MILTON PRESSED BRICK GO.

Limited

Manufacturers of

High-Grade Pressed Bricks Terra Gotta Mantels

MILTON ONT

All quotations are subject to change without notice. All agreements are contingent upon strikes or other delays beyond our control, and all contracts must be approved by the head office.

MILTON, ONT., Feb. 26/13.

President Falconer, University of Toronto, Toronto, Ont.

My dear Sir:-

J. S. McCANNELL,

F. J. MacROSTIE.

President & Man. Dir.

Secretary-Treasurer

I am enclosing you a letter which speaks for itself.

It would appear that the Queen's University is out after the machinery offered by The C. W. Raymond Co. It would seem a pity to let this generous offer go outside of Toronto. If there is any possibility of establishing a Ceramic School.in Toronto we believe the matter should be brought to an issue as soon as possible.

Yours truly,

J.S.McC/enclos.

Jen Hi annell

39

The Kingston Brick and Tile Company

_____I

Manufacturers of

Red and White Brick and all Sizes of Tile

WORKS AT KINGSTON AND SEELEY'S BAY ...

A. NEAL,

HEAD OFFICE,

Kingston, Ont., 13th Feb.

191 3

J. S. McCannell, Esq., Milton, Ontario.

Bear Sir.

Since returning from the Convention at Toronto I have taken the matter up with Prof. Baker and Prof. Goodwin of the School of Mines in connection with meen's University, Mineston, and find them very enthusiastic regarding the Ceremic Cahool or technical education, so much so that they are going to ask the Technical Committee to co-aperate with them in asking for a grant of five thousand dollars from the Ontario Severment, which is all they require cutaids the equipment offered by the Roymond people. As you are no doubt aware this Cahool of Mines in connection with Tusen's College is one of the best in the Dominion, and admirably scapted to handle this proposition, and the sum asked for is so small that the Committee will doubtless be glad to aid in obtaining it.

Yours truly,

Albert Real

Aniversity of Toronto. PRESIDENT'S OFFICE.

3:6

Extract from Ohio State University Bulletin, May, 1912.

CERAMIC ENGINEERING.

Inis department is located in the School of Mines Builling.

The facilities of the department comprise a convenient enemical laboratory

for analysis of silicates, a mechanical outfit for the preparation of clays

for pottery manufacture and the production of the ware itself; machinery

for grinning and tempering: a plant for the manufacture of brick, tiles,

pipes, and hollow goods: a kiln house, equipped with three down-draft kilns,

using solid fuel; two Caulkin's muffle kilns arranged to fire either oil or

gas, and several small furnaces for burning cements, testing refractory

materials by use of compressed air and natural gas: an electric furnace for

high-temperature work: a ceramic museum, containing a collection of American

pottery and clay products: a library of the best literature on the subject,

mainly German, but containing a few English and French works, and the trade

periodicals.

SAMUEL W. BEYER
IRA A. WILLIAMS
LAURENCE C. HODSON
GEORGE A. GABRIEL
OTTO M. SMITH
MILTON F. BEECHER
R. L. HURST

IOWA STATE COLLEGE

DEPARTMENT OF
GEOLOGY AND MINING ENGINEERING
AMES, IOWA, U. S. A.

395

February 27, 1913.

President of Toronto University,

Toronto, Canada.

Dear Sir,-

Your letter of recent date, in regard to the Department of Ceramics, has been referred to me for answer.

tablished by the Legislature of Iowa several years ago. The Ceramics Building cost \$15,000 and the equipment, including furniture, cost about \$7000; and the maintainance about \$600.

A staff of two men, an Associate Professor receiving \$1950 per year, and an Instructor and Experimentalist receiving \$1250 per year.

I shall be pleased to give you any other information that I can.

Yours very truly,

Ow 13re er

OFFICE OF THE SECRETARY OF STATE, OTTAWA 19th March, 1913. PJ Dear Sir, Your favour of the 18th instant has been duly received. I need not assure you that the important matter therein treated respecting the establishment of a department for clayworkers in the University of Toronto, will receive my most serious consideration, and I shall submit the same to my Colleagues at the first opportunity. Yours very truly, Louis Codene R.A.Falconer, Esq., President, University of Toronto, Toronto. Ont.

A PROSPECTIVE COURSE OF CERAMICS IN UNIVERSITY OF TORONTO.

The Canadian Clayworkers' Association, meeting in Toronto Tuesday, Wednesday and Thursday of last week, have revived with renewed vigor a movement to establish in the Faculty of Applied Science and Engineering, University of Toronto, a course in Ceramics.

This movement on the part of the executive is the result of a deeply-felt need experienced by the manufacturers of clay products for technical knowledge of the properties of the raw materials, and for more scientific methods in the process of manufacture.

No sooner had it been decided to take steps in this direction than a United States brick machine company came forward with an offer to furnish any Canadian university disposed to inaugurate such a course with a fairly complete laboratory equipment consisting of a brick machine, grinding-pans, automatic cutter dies, and other necessities.

The president and the Board of Governors of the University of Toronto have expressed their sympathy with the desire of the Canadian Clayworkers' Association for the founding of a course in Ceramics. President Falconer, as the representative of the Board, stated that it was entirely a question of funds, and he impressed upon the deputation which waited upon him the necessity of bringing the matter before the Provincial Government in order that funds might be provided for such a course.

It is vitally important to the clayworkers' industries of the Province of Ontario, and, in fact, of the Dominion of Canada, that a department of Ceramics should be founded in the immediate future. The Provincial Government must not withhold the requisite aid for technical instruction in one of the most important industries of the Province.

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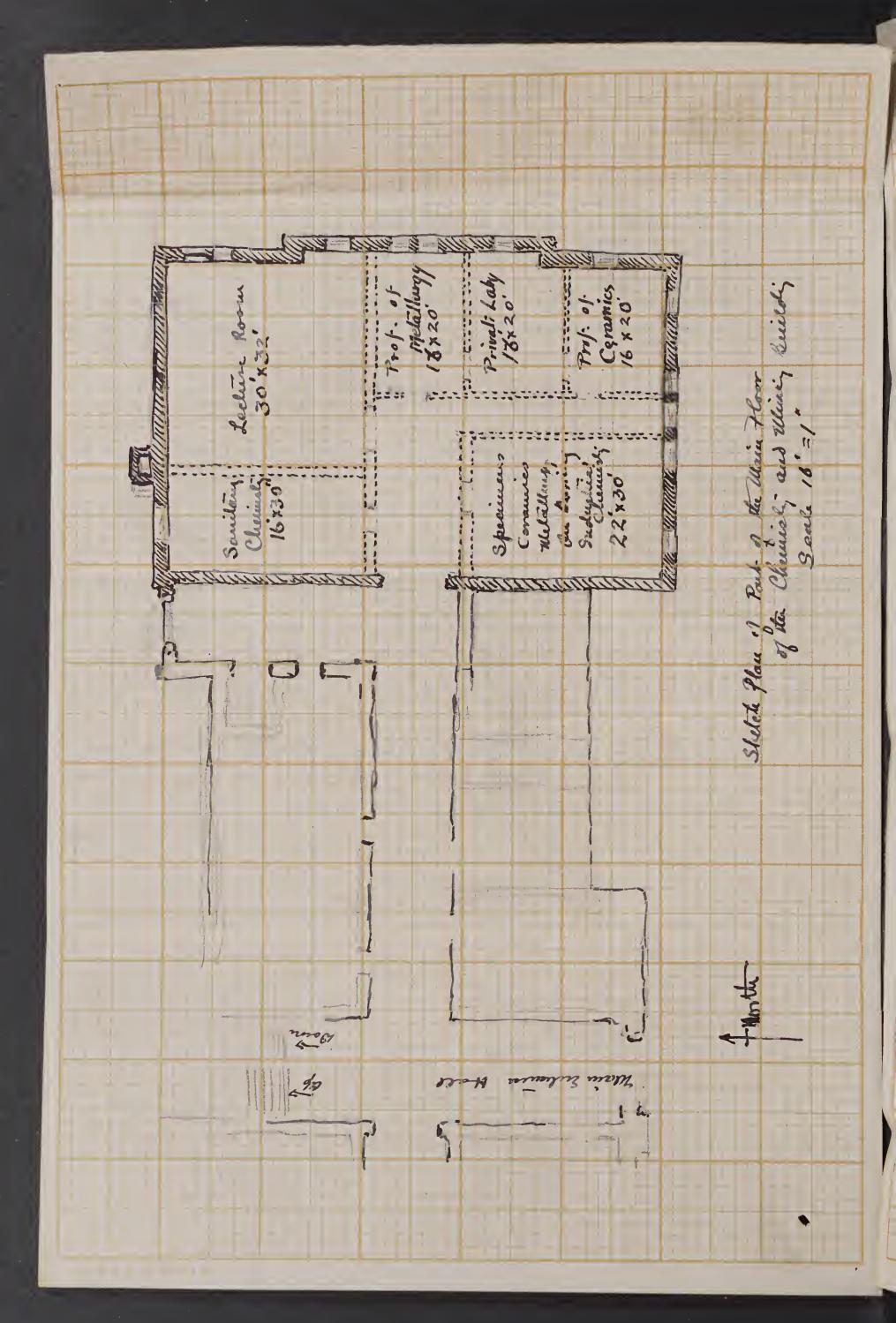
MEMORANDUM

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Old report called for 7,000 sq. feet-

SCHOOL OF MINES OHIO STATE UNIVERSITY COLUMBUS, OHIO			Area accord- Area ing to Pro- Pro- posal 1 posal 2
Glass Work	12'-8" X 22'-6"	- 285 sq.ft.	480 sq.ft
Ceramic Physical Laboratory	17'-4" × 30'-9"	- 527 sq.ft.	
Instructors' Laboratory	15'-4" X 18'-6"	- 283 11 11 -	320 sq.ft 320 sq.ft
Balance Room	10'-X 15'-4"	- 153 " "	
Ceramic Chemical Laboratory	29' X 50'-8"	- 1469 " "	
Lecture Room	31' X 34'-8"	- 1094 " " -	960 sq.ft 960 sq.ft
Museum and Office	221-7" X 311	- 698 " " -	660 " " - 660 " "
Storage - 8' X 8'; 17'-2" X	30¹-9¹¹; 8¹ X 38	1_ 895 11 11 _	360 " " - 780 2 "
Main Work Room	291 X 661-611	- 1933 " " -	1500 " " - 1100 " "
Pottery Machinery	31' X 34'-8"	- 1074 " ")	100 - 21 3500 " "
Machinery Room	22'-7" X 31'	- 698 " ") -	420 sq.ft1500 " "
Motor Room	8' X 32'	- 256 " "	
Kiln Room	38' X 38'	1444 " "	
Private Room Staff		•	- 320 sq.ft 320 sq.ft
Hetallurgy		-	320 " " - 320 " "
Industrial Chemistry			1100 " "
Sanitary Chemistry			480 " "

Thought Stutch Plan of Slones 12×30 30'x 50' Berowie Rabordon, nuderaliza. Expanie Thachinery 15 x 28' مس the said



¹フ BASEMENT TOOR POAN Stores 12×30 Ceramic Machinery
30'x50' Ceramic Labs Proposal

J. R. Walsh, Esc.,

February 28tm, 1913

Secretary, Clayworkers' Association,

Flliott House, Toronto.

My dear Sir':

I overlooked writing to you a fortnight ago after a meeting of the Board of Governors with regard to the action which they took in the matter of instituting a Department of Ceramics in the University of Toronto.

A report was made to the Governors showing that with some outlay it would be possible for us to provide accommodation for the Department in one of our existing buildings. Also, that the abount for possible hours be very large, and that we would have to appoint a professor, a demonstrator, and a laboratory assistant. The Governors are desirous of establishing the Department as soon as the funds are forthcoming, and they note that it will be in the University of Toronto that the first department will be created.

Ottawa asking whether they could make a grant towards such a department, and I have written to Sir James Whitney, in addition to having supported the proposition in a memorandum of the needs of the University of Forento, which was given to the Ontario Government over a month ago.

Governments in Toronto and in Ottawa urging them to support the establishment of the department in the University of Toronto it would I am sure help along the project. This is the University to which it should come in view of the steps that we have already taken.

I am, Yours sincerely,



SCHOOL OF PRACTICAL SCIENCE.

TORONTO, Mar. 4th 1907. 190

The Honourable,

The Minister of Education,

Toronto.

Sir:-

In accordance with instructions received from you we have visited and inspected the Ceramic Department of the Ohio State University, situated at Columbus, Ohio. This department is under the charge of Professor Edward Orton who received us most cordially, gave us every possible facility for furthering the object we had in view, devoted two whole days to showing us his building and equipment and explaining to us the working of his department.

Two courses of instruction in Ceramics are given at Columbus by Professor Orton and his associates in the University Of Ohio:

1. A course of four years leading to a degree in Engineering (E.M. in Ceramics) intended to give such training in engineering, physics, chemistry, mineralogy and geology, with special reference to non-metallic, inorganic substances as is suitable for a young man desiring to fit himself for a position as superintendent or engineer in charge of a manufactory of bricks or tiles, a pottery, glassworks, cement works or other allied industry.

2. A short course of two years covering as much of the subjects taken in the four-year course as is suitable for those who occupy a position such as that of foreman on one of these industries.

Since the school was begun in 1894 there have been about 125 students. Of these ten have completed the full angineering course and received the degree and about thirty have completed the short course and received the certificate to that effect. Many of the students only attend for one year and do not try to pass the examinations of certificate.

Buildings -)

The Ceramic department occupied part of a building of which the remainder is devoted to the department of Metallurgy. The Ceramic department occupies about 35% of this space. The entire cost of the building was \$85,000.

Equipment -

The equipment comprises the following:

- (a) A collection for teaching purposes of the materials and products of clay working.
- (b) A collection of drawings and lantern slides of Kilus furnaces and clay working machinery.
- (c) An experimental clay working plant comprising the following machines:

Machinery for dry grinding including: dry pan, iron ball mill, crusher, pneumatic sieve, hand sieves, screening apparatu.

Brick machinery including: pug mill, Auger brick machine, repress machine, dry press hand power brick machine, rattling cylinder for testing paving brick.

Pottery machinery, including: Several ball mills, pheumatic screen, filter presses, jiggers, tile press, moulds, plaster wheel.

Testing machinery: - tensile test machine with special champs, thermocouple and galvanometer.

Kilns:- Brick drier, cil kiln, muffle kiln, down draught coal-fired kiln, Deville furnace, gas fritt furnace, electric furnaces and electrical measuring outfit.

(d) Ceramic Library.

The total value of the equipment is estimated at about \$12,000.

Teaching Staff - y

The instructors in Ceramics comprise a Professor, an assistant Professor and two assistants. Instruction is also given by the University Staff whose subjects are included in the curriculum.

Cost -

The cost of the maintenance of the Ohio State University Ceramic Department is about \$6,000 a year.

Other Ceramic Schools in the U. S.

The Ceramic School in New York was started on an appropriation of \$20,000 and received \$5,000 per annum.

The New Jersey Ceramic School was started with \$12,000. Their present income is \$2,800 per annum.

The University of Illinois appropriated two years agp \$10,000 for a Ceramic Department. They are now asking and expect to get \$30,000 for building and equipment.

The State of Iowa is about to make an appropriation for a Ceramic School.

With hardly an exception those students who have passed successfully through their courses in the Ohio School have received employment in clay working concerns and many of them are now holding important positions in such industries all over the United States.

Acting on the advice of Professor Orton, and furnished with Letters of introduction from him we visited on our way home several large clay working plants at Zanesville and at Akron, where we were enabled to see the practical side of the clay industry carried out on a very large scale and in high state of development both on the commercial, the scientific and the artistic side.

We met everywhere strong endorsement of the Ohio State University Ceramic School and warm appreciation of the good work it was doing.

The Principle on which this school has been conducted from its inception is that of endeavouring to provide for the non-metallic mineral industry of the State the same kind of training which has long been available for metal workers in Schools of Applied Science under the head of Mining and Metallurgy.

The preliminary training in mathematics, physics, chemistry and mineralogy and geology is common to all the branches of engineering taught in the University of Ohio and is conducted by the same teachers. Specialization begins in the second year and consists of a more detailed study of the chemistry of the silicates and of non-metallic mineral chemistry in general and in the application of the general principles of mechanics, physiscs and chemistry to the problems of the clay workers, glass makers, etc.

In conclusion we wish to express our grateful appreciation of the kindness and consideration shewn us by Professor Orton and his associates to whose advice and assistance we owe entirely the successof our visit.

We have the honour to be,

Sir,

Your obedient servants,

COST OF BUILDING.

The entire building cost \$85,000, the Ceramic Department occupies about 35% of the building.

The total value of the Ceramic Department equipment in this building, collections and all is estimated at about \$12,000.

The University of Illinois Ceramic Department are now asking for \$30,000 for building and equipment, They had appropriated two years ago \$10,000.

The Ceramic School in New York was started on an appropriation of \$20,000, They now get about \$5,000 per annum, which is absorbed largely by other things.

The New Jersey Ceramic School was started with \$12,000, and their present income is \$2,500 per year.

Iowa has never received an official appropriation, but they are about to get one this year.

The cost of administration per year of the Ohio State University Ceramic Department is about \$6,000.

Columbus, Ohio, Feby. 27th, 1907

INFORMATION COMPILED FOR THE COMMITTEE FROM THE PROVINCIAL PARLIAMENT OF ONTARIO, REGARDING CLAYWORKING SCHOOLS.

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DRY GRINDING DEPARTMENT.

- 1 4% dry pan, with extra plates for use as a wet pan, built in EAst Liverpool, Ohio by A. J. Boyce, value \$300.00. Would recommend a smaller pan; J' is big enough; it would cost \$150 to \$200. The Patterson Foundry Machine Company, of East Liverpool, Ohio, have patterns for such a machine.
- I Iron ball mill for fine pulverizing, made by the Hayden Foudry & Machine Co., Columbus, Ohio, cost about \$60.00
- (Balls furnished by the Golding Sons Co., Trenton, N.J., imported.)
 - 1 small crusher, made by the Denver Fire Clay Co., Denver, Colo. value 35 00
 - l pneumatic sieve, Hanna Engineering Co., Chicago, Ill. Price \$60, for school purposes \$30.00, very valuable tool.
 - l set of hand sieves.
 - 1 Williams hand-power screening apparatus, cost about \$27.50.

All this apparatus in one room, with one method of ingress, recome door. All the dry grinding machinery in this one room.

BRICK MACHINERY ROOM.

- 1 4' pug mill, built by E. M. Freese, Gallion, Ohio.
- 1 #2 Giant auger brick machine, with cutter and automatic cutting table complete, value \$1750.00. Presented. I would recommend

11211

the purchase of a small sized double-geared auger machine on the market. I would not take a single geared machine.

I would recommend an adjustable cutting table, which will cut either tile or brick. I have one side-cut common brick die, one side-cut block die, one double-stream end-cut die, and one single-stream end-cut die. I have ordered one 4" drain pipe die, and one 4 x 8 hollow brick die.

- 1 Chambers repress machine, hand power, with dies for face-and paving-brick. Presented. costs about \$250.00.
- Raymond dry-press hand-power brick machine, one die. Presented.

 Costs about \$350.00
- 1 Rattling cylinder for testing paving brick. Made by P. Hayden Foundry, Columbus, Ohio. \$135.00. or Riehle Bros., Philadelphia, Pa.

POTTERY MACHINE ROOM.

Met Grinding Machinery.

- 1 24"x 24" wet ball-mill, home made, value about \$75.00
- 4 12 x 12" ball mills, Abbe Engineering Co., New York City, about \$120.00 for the four.
- 6 Double Trojan mills, carrying two one-gallon jars, and two onequart jars in each. About \$200 for the six.

Wet Screening.

Hanna pheumatic screen with set of brass sieves from 20 mesh to 200 mesh, worth Hanna shaker \$30.00 and the screen \$30.00 more.

(Filter Presses.)

- 1 Crossley press (for white clay only) sold to me for \$60.00 list price \$125.00
- 1 Filter press to be used for red clay only, capacity about 75 pounds at one pressing, hand pump, value about \$80.00

T. Schriver, Harrison, H. J., make the pump.

Potters pug mill, I have none. You need about a 10" mill, and it should be made to open out with hinges, so that it can be easily cleaned.

Blunger I use the ball mill for that purpose, except for light work, when I use the Chovey rotary EKRERER Churn. Co f 5

JIGGURING MACHINERY.

- Jiggers, one for hand turning, \bar{I} would recommend one of variable speed and one hand turning machine. Value of jiggers about \$\\$100 each.
- 1 Potters lathe, Not much need for it. Was presented. Whee about 50,000

STUDENTS WORK ROOM.

- 1 Crossley tile press 42" die, Very useful tool. Use it for all sorts of purposes. Cost \$100.00, list price \$160.00
- Hand-power trial press making 100 millimeter test bars.
 This has been presented but has not yet arrived.
- I Tensile test machine, Riehle Bros., for 80.00 Clamps will cost about \$20.00 per set.
- Student outfits, involving calipers, scales, receptacles, weighing apparatus, pallet knives, filter press cloths and sacks, etc., amounting to about \$15.00 to \$20.00 per outfit.
- Separate lockers 42 x 8 for the students to use Wedging blocks one for red and one for white clay, zinc lined, cost about \$20.00 each.

PLASTER ROOM.

1 Hand turn plaster wheel.

MOLD ROOM.

An assortment of vase molds, about 50 shapes.

An assortment of common dish molds, cups and saucers and so on.

Total value of molds about \$200.00 But if you were to have them made it would cost you a great deal more.

KILN ROOM.

- 1 Two compartment brick drier, iron plates, gas burners, cost about \$40.00
- 1 #7 Caulkins kiln, fired by oil. Made by H. J. Caulkins, MEtroit, Mich. Value \$175.00.
- 1 Up-draft muffle kiln, fired by gas, capacity about three times that of the oil kiln. Cost \$75.00 to \$100.00
- Down-draft coal fired kiln, capacity about 30" wide x 36" deep x 4' high, cost about \$125.00. Stack 65' high, four compartments, each kiln with separate compartment.
- 1 Deville furnace for high temperature, \$40.00
- 1 Gas fritt furnace for melting fritts, about \$50.00
- 1 Small gas muffle kiln, Cost originally \$60.00. Not very useful.
- 1 he Chatelier thermo-couple and galvinometer, price \$135.00 Chas. Englenard, New York City, Agent.

STORE ROOM.

Bins, Metal Lined etc., cost \$360.00

PHYSICAL CHEMICAL OUTFIT.

- 1 Outfit a bout \$500.00
- 1 Electrical furnace, \$60.00 plateum resistance
- 1 Electrical furnace, for carbon resistance. 4000

LIBRARY.

Should invest at least \$400.00 for technical library.

The committee to whom was referred a communication from the Clay Products Manufacturers' Association asking for the establishment of a course in Ceramics in the department of Applied Science of this University beg leave to report as follows:

Your committee understand that the Association desire a course of instruction in those branches of Science which bear upon the manufacture of clay products, with a view to training engineers who may be intrusted with positions of responsibility such as Superintendent or Manager in such works. These branches of Science in question are physics, chemistry, mineralogy and geology and engineering, all of which are already taught in the S. P. S.

A graduate of the Faculty of Applied Science in Chemical or Mining Engineering could readily acquire the additional special knowledge nf required for such a position if he were given the opportunity. Much of the instruction which is included under one title of Ceramics is already taught in the S. P. S. in the departments of Applied Chemistry, Mineralogyand Geology and Mining. Any more special treatment of clay materials and products than is given at present would demand the appointment of an instructor in Ceramics and the establishment of a clay working laboratory and a Ceramic collection. The laboratory might be built in connection with a laboratory for chemical preparations on the large scale and with a cement laboratory. The collection might form part of a museum of chemical materials and products of which the nucleus is already formed, but which might be very greatly extended if means were afforded.

If an instructor and equipment such as that just outlined were provided the University would in the opinion of your committee, be justified in providing special instruction for clay workers as a branch of chemical engineering, and such a course would in your committee's opinion, be of advantage both to the clay industries and to the Province at large.

The committee appointed to consider the advisability of establishing a course in clay working, begs to report as follows:

They are of the opinion that it would be desirable to establish such a course leading to the degree of R.A.Sc. and they submit herewith a curriculum for the first three years leading to the diploma of the Baculty.

They are also of the opinion that to teach such a curriculum an instructor or instructors would have to be appointed and a building to afford the necessary accommodation for the laboratories, museums and lecture rooms. About 7000 sq. ft. floor space would afford accommodation for the near future for students engaged in the proposed course.

Your committee would recommend that the purchase of machinery and other apparatus for this course should not be made until the lecturer or other instructor in Ceramics has been appointed and that his advice should be taken in the matter of purchasing this apparatus and in the design of the building.

Department of Mines,

Copy.

Ottawa, April 2nd, 1913.

Dear Dr. Low:

I beg to acknowledge receipt of your letter of the 1st instant, with enclosure of letter from Dr. Falconer asking for an annual grant to the University of Toronto towards the conduct of a Department of Ceramics.

In reply to your request for my views regarding this matter, I beg to state the following facts: Since 1905, the date of the publication of the "Report on the Industrial Value of the Clays and Smales of Manitoba", by the Mines Branch of the Department of the Interior, the requests made to the Department for analyses and determination of the physical character of the clays have been so numerous, that it has become necessary to enlarge our facilities to meet this demand. Consequently, in our new laboratories on Sussex Street provision has been made for the installation of a complete momen plant suitable to determine, on a commercial scale, the chemical and physical characteristics of the clays submitted to our Department for report.

No grant which might be given to any University for the establishment of a Department of Ceramics will relieve the pressure of work for the determination of the suitability of the different clays of Canada for industrial purposes, which comes to us from every part of Canada. While, from an educational standboint, the country would be greatly benefitted by Universities taking up the training of men in the special branch of Ceramics, and thus furnish the country with experts competent to take intelligent charge of operating plants, such a Department, established with the main purpose of teaching young students, could not undertake the practical part of the work in this branch of economics, which is one of the functions of the Vines Branch of the Department of Wines. Were

an educational institution inclined to attempt to do commercial work, in addition to its legitimate teaching work, either the work would have to be done by inexperienced students or else by instructors whose time and energy should be taken up with instruction and not with analyses and determinations for outside parties, which must be furnished promptly. Wanifestly, either the work done, if done by students will be unreliable, or if done by instructors or professors during term time the students will be neglected. These conclusions are based upon an experience of over 30 years as Professor and Dean in the Science Faculties of different Universities and in different countries.

Moreover, if the Government ware to grant this request of

President Falconer's a precedent would be astablished, which would render it difficult for the Government to refuse grants for the same or similar objects which would be sure to come to it from other Universities.

For these reasons T respectfully submit, that the grant asked for should not receive favourable consideration by the Government.

I ar, Sir,
Yours very faithfully,
(Signed) Augene Haanel.
Director of Mines.

Dr. A. P. Low,

Deputy Minister,

Department of Mines,

Ottawa.

Ottawa, 30tn June, 1913

COPY.

Dear Sir:

Referring to previous correspondence on the subject of financial aid to the University of Toronto to establish a Department of Ceramics, I meg to enclose copy of a letter addressed by the Director of Mines, Dr. Haanel, to the Deputy Minister of Mines to whom I had submitted your letter of the 18th March, with regard to this matter. I may add that for the reasons therein set forth, in which I concur, I cannot recommend the granting of the request of your University.

Yours very truly,
(Signed) Louis Coderre

R. A. Falconer, Asa., Fresident,
University of Toronto,
Toronto, Ont.